

REMARKS

Applicant respectfully requests consideration of the subject application as amended herein. This Amendment is submitted in response to the Office Action mailed on May 15, 2006. Claims 1, 3-8, 10, 11, 13-26, 28-31, 33-40, 42 and 44 are rejected. Claims 1, 8, 11, 26, 31, 40, 42 and 44 have been amended. No new matter has been added. Therefore, claims 1, 3-8, 10, 11, 13-26, 28-31, 33-40, 42 and 44 are presented for examination.

Claim Rejections

The Examiner rejected claims 1, 3-8, 10-11, 13-26, 28-31, 33-40, 42 and 44 under 35 U.S.C. § 103(a) as being unpatentable over Bugnion et al, (U.S. Patent No. 6,496,847, hereinafter “Bugnion”), in view of Applicant’s prior art.

Applicant does not admit that Bugnion is prior art and reserves the right to swear behind the reference at a later date. Regardless, Applicant respectfully submits that claims 1, 3-8, 10-11, 13-26, 28-31, 33-40, 42 and 44 are not anticipated by Bugnion.

The Examiner rejected claims 14-15, 17-18, 20-22, 29-30, 35 and 37-39 under 35 U.S.C. § 103(a) as being unpatentable over Bugnion in view of APA, as applied to claim 13 above, and further in view of Lim, et al., (U.S. Patent No. 6,795,966, hereinafter “Lim”). Applicant does not admit that Lim is prior art and reserves the right to swear behind the reference at a later date. Regardless, Applicant respectfully submits that Bugnion and Lim, either individually or in combination, do not teach or suggest each and every limitation of the rejected claims.

Bugnion discloses a host operating system 340 and a virtual machine monitor (VMM) 360 existing in parallel at a system level on hardware 110 (Bugnion, col. 7, lines 13-17, FIG. 3). Bugnion further discloses a device emulator 300 that runs on top of the host operating system 340 (Bugnion, col. 7, lines 13-17, FIG. 3). The VMM 360 handles the virtualization

of the core computer components such as the processor and memory management unit, while the device emulator 300 “virtualizes I/O devices” (Bugnion, col. 7, lines 21-25).

In other words, Bugnion discloses having various physical system devices and a device emulator that emulates the functionality of the various system devices. Bugnion does not teach or suggest having a software component of a soft device that controls a residual fixed function hardware device represented by a hardware component of the soft device, as claimed in the present invention. The Examiner acknowledges that “Bugnion does not teach the driver controlling a residual fixed function hardware device represented by a hardware component of the device” and cites APA for such teaching. Applicants respectfully disagree.

APA specifically states that implementation of host-based soft devices

has been limited almost entirely to Microsoft Windows operating systems ..., leaving other personal computer operating systems (e.g., BeOS) without available host-based soft devices. In addition, the development of a soft device for Windows has not been an easy process. Recent experience with Windows-based soft devices has shown the inability of Microsoft to develop a stable device driver model.... In addition, Windows-based soft devices suffer from excessive latency in the host operating system because Windows operating systems lack real-time quality of service (QoS) guarantees.

(Specification, page 2, lines 6-20)

Furthermore, APA states that “it would be advantageous to construct a host processor soft device that would be independent of the host processor operating system” (Specification, page 2, lines 21-22).

Hence, neither Bugnion nor APA teach or suggest a driver of a soft device controlling a residual fixed function hardware device represented by a hardware component, where the soft device is made available for use by one or more virtual machines and is independent of any operating system run by the virtual machines.

Lim lacks the same features that are missing from both Bugnion and APA.

Thus, the cited references, taken alone or in combination, do not teach or suggest the features of the present invention that are included in the following language of claim 1:

... implementing a software component of the soft device in a virtual machine monitor as a soft device driver, the soft device driver controlling a residual fixed function hardware device represented by a hardware component of the soft device; and

making the soft device available for use by one or more virtual machines coupled to the virtual machine monitor, the soft device being independent of any operating system run by the virtual machines.

Similar limitations are also included in independent claims 8, 11, 26, 31, 40, 42 and 44. Accordingly, independent claims 1, 8, 11, 26, 31, 40, 42 and 44, and their corresponding dependent claims, are patentable over the cited references.

Applicants respectfully assert that the pending claims are in condition for allowance, and requests that the Examiner remove his rejections under 35 U.S.C. § 103(a).

Conclusion

Accordingly, Applicant respectfully requests the withdrawal of the rejections and submits that pending claims 1, 3-8, 10, 11, 13-26, 28-31, 33-40, 42 and 44 are in condition for allowance. Applicant respectfully requests reconsideration of the application and allowance of the pending claims.

If the Examiner determines the prompt allowance of these claims could be facilitated by a telephone conference, the Examiner is invited to contact Marina Portnova at (408) 720-8300.

Deposit Account Authorization

Authorization is hereby given to charge our Deposit Account No. 02-2666 for any charges that may be due. Furthermore, if an extension is required, then Applicant hereby requests such extension.

Respectfully submitted,

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